

## PROJECT NOTE

TO: Project File

SUBJECT: Jard Company, Inc.

TASK DESCRIPTION: Monitoring Well Elevation Data Evaluations

TDD NO.: 13-09-0001

W.O. NO.: 20114-091-998-0904

TASK NO.: 60

DATE: 30 September 2013

PREPARED BY: Carolyn Imbres

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### Evaluation of ground water monitoring well screened intervals:

Data was evaluated from several sources to determine the depths, adjusted to mean sea level (msl), of the screened intervals of ground water monitoring wells presented in the Jard Company Inc. Hazard Ranking System (HRS)/National Priorities List (NPL) Documentation Record. These data sources include elevation surveys, boring logs, and cross-sections produced as part of previous investigations of the Jard Company Inc. property. The relevant sections of the HRS references used to support this Project Note are included as Attachment A. The monitoring wells presented in the HRS/NPL Documentation Record include the following: background wells EPA-100, EPA-107, and MW-11; and contaminated wells MW-3, MW-3D, MW-6, and MW-9D.

The msl depths of the screened intervals of the HRS groundwater monitoring wells were determined using the well construction boring log records, which documented these intervals in depths below ground surface (bgs) [36, pp. 41, 43; 65, pp. 69, 72, 78; 88, pp. 145, 161]. Elevations of well casings and the ground surface at each well, as referenced to an arbitrary elevation point of 100 feet (Columns A and B below), were obtained from an elevation survey performed during investigations for the Kocher Drive and Park Street sites and were included in correspondence from Vermont Department of Environmental Conservation (VT DEC) representative Patricia Coppolino [52]. Data from a second elevation survey which presented top of casing msl elevations were evaluated for several wells, and where necessary were evaluated in conjunction with the Kocher Drive and Park Street sites survey [68, p. 7]. Once the msl ground surface elevation of a monitoring well was determined based on data provided from one or both of the elevation surveys, the top and bottom of the screened interval (in feet bgs) was subtracted from the ground surface elevation, to calculate the screened well interval in depth above msl.

Well ID	Inner Casing Elevation (feet) (A)	Ground surface elevation (feet) (B)	A – B = C (feet)	Top of Casing Elevation (msl) (D)	Ground surface elevation (msl)	Screened Interval (feet bgs)	Screened Interval (msl)	References
EPA-100	145.15	142.42	2.73 <sup>1</sup>	683.06	D – C = 680.33	27-32	653.33-648.33	52, p. 3; 68, p. 7; 88, p. 146
EPA-107	114.89	115.07 <sup>2</sup>	-0.18	650.01	D – C = 650.19	12.2-22.2	637.99-627.99	52, p. 2; 68, p. 7; 88, p. 162
MW-11	-----	-----	-----	667.23	667.46 <sup>3</sup>	1.5-11.5	665.96-655.96	53, p. 1; 65, pp. 44, 69; 68, p. 7

Well ID	Inner Casing Elevation (feet) (A)	Ground surface elevation (feet) (B)	A – B = C (feet)	Top of Casing Elevation (msl) (D)	Ground surface elevation (msl)	Screened Interval (feet bgs)	Screened Interval (msl)	References
MW-3	-----	-----	2.2 <sup>4</sup>	685.75	D – C = 683.55	2.5-8.5	681.05-675.05	36, p. 41; 53, p. 1; 65, p. 44; 68, p. 7
MW-3D	-----	-----	-----	686.29	683.55 <sup>6</sup>	23-28	660.55-655.55	36, p. 43; 53, p. 1; 65, pp. 44, 54, 72; 68, p. 7
MW-6	-----	-----	2.5 <sup>5</sup>	682.64	D – C = 680.14	6.8-11.8	673.34-668.34	53, p. 1; 65, p. 44; 68, p. 7
MW-9D	-----	-----	-----	669.34	669.62 <sup>7</sup>	22-27	647.62-642.62	53, p. 1; 65, pp. 44, 78; 68, p. 7

<sup>1</sup> The inner casing (PVC riser) was documented during well installation as measuring 2.7 feet above ground surface (ags) [88, p. 146].

<sup>2</sup> The road box was documented during well installation as flush with the ground surface [88, p. 162].

<sup>3, 7</sup> The monitoring well metal casing was documented to be flush with the ground surface [53, p. 1; 65, pp. 69, 78].

<sup>4, 5</sup> The distance between the top of the inner casing and the ground surface was documented during well installation [36, pp. 41, 43].

<sup>6</sup> The ground surface elevation was not available for this well location in available documentation. In addition, the distance between ground surface and the top of casing was not indicated on available boring logs. Based on observations made in the field by Weston Solutions, Inc. personnel during the April 2013 Site Reassessment (see photograph in Attachment B), and documentation provided in a Johnson Company cross-section (Ref. 65, p. 54), the ground surface elevation of MW-3D is similar to that of nearby well MW-3. Therefore, the ground surface elevation documented for MW-3 is also used for MW-3D.

### **Evaluation of ground water flow direction:**

The direction of ground water flow within the overburden aquifer beneath and downgradient of the Jard Company Inc. property was evaluated based on depth to ground water measurements collected from 20 ground water monitoring wells as part of the EPA Site Reassessment (SR) [see HRS Reference 10, pp. 10-11]. On 27 March 2013, WESTON personnel measured the depth to ground water in feet from the top of casing (TOC) at ground water monitoring well locations associated with the Jard Company Inc. (Jard) site [10, pp. 10-11]. WESTON also documented the geographic location of the monitoring wells using a Global Positioning System (GPS) unit [10, p. 52]. The Johnson Company provided survey data indicating the TOC elevations for the monitoring wells in feet above msl [68, p.7]. The depths to ground water were then subtracted from the TOC elevations to determine depths to ground water in feet above msl, and these data points were plotted and contoured using Surfer 8. Based on mapped contours and ground water elevation data, ground water flow beneath and downgradient of the Jard Company Inc. property is generally to the northwest (see Attachment C).

## **ATTACHMENT A - REFERENCES**

HRS Reference No. 36 (Excerpt): Wehran EnviroTech. 1991. Phase 2 Environmental Site Assessment, Jard Company Property, Bennington, Vermont. February.

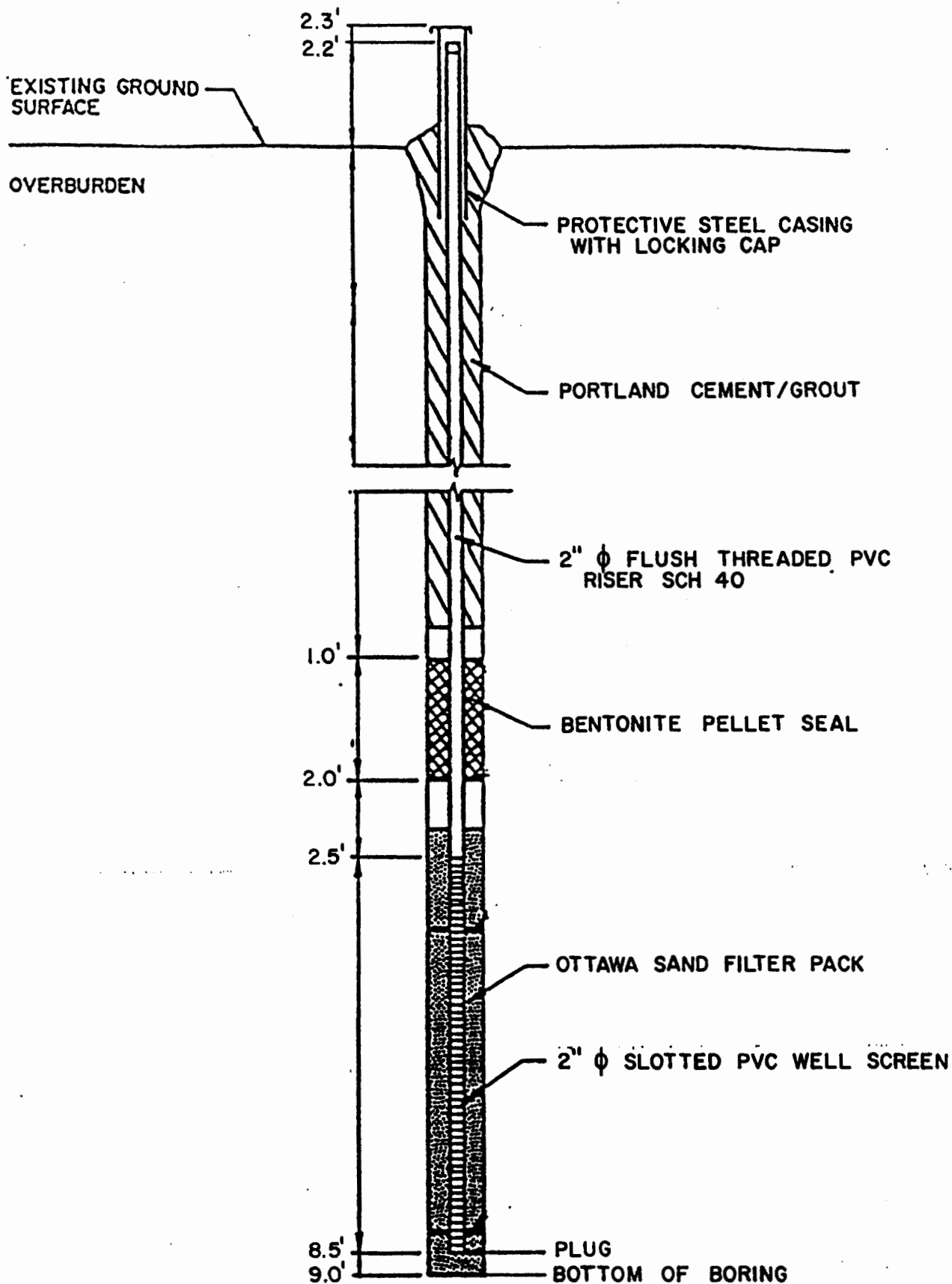
HRS Reference No. 52: Correspondence regarding Elevation Survey. Email with Attachment, from Coppolino, P., Vermont Agency of Natural Resources to Hornok, G. Weston Solutions, Inc., (START). 16 September 2013.

HRS Reference No. 53: Guntlow & Associates, Inc. Monitoring Well Elevation Survey Data. Internet Accessed on 30 September 2013 from: <ftp://ftp.anr.state.vt.us/>. Data generated on behalf of The Johnson Company (see HRS Reference No. 65, p. 25).

HRS Reference No. 65 (Excerpt): The Johnson Company. 2010. Limited Phase II Environmental Site Assessment Report: Stage I, Former Jard Company Site, Bennington, Vermont. 3 December.

HRS Reference No. 68 (Excerpt): The Johnson Company. 2013. October 2012 Groundwater Sampling, Former Jard Company Site. 25 February.

HRS Reference No. 88 (Excerpt): Weston Solutions, Inc. 2013. Removal Program Preliminary Assessment/Site Investigation Report Addendum for the Park Street Site, Bennington, Bennington County, Vermont, July, August, and September 2012. TDD No. 01-12-03-0002. March.



**WehranEnviroTech**

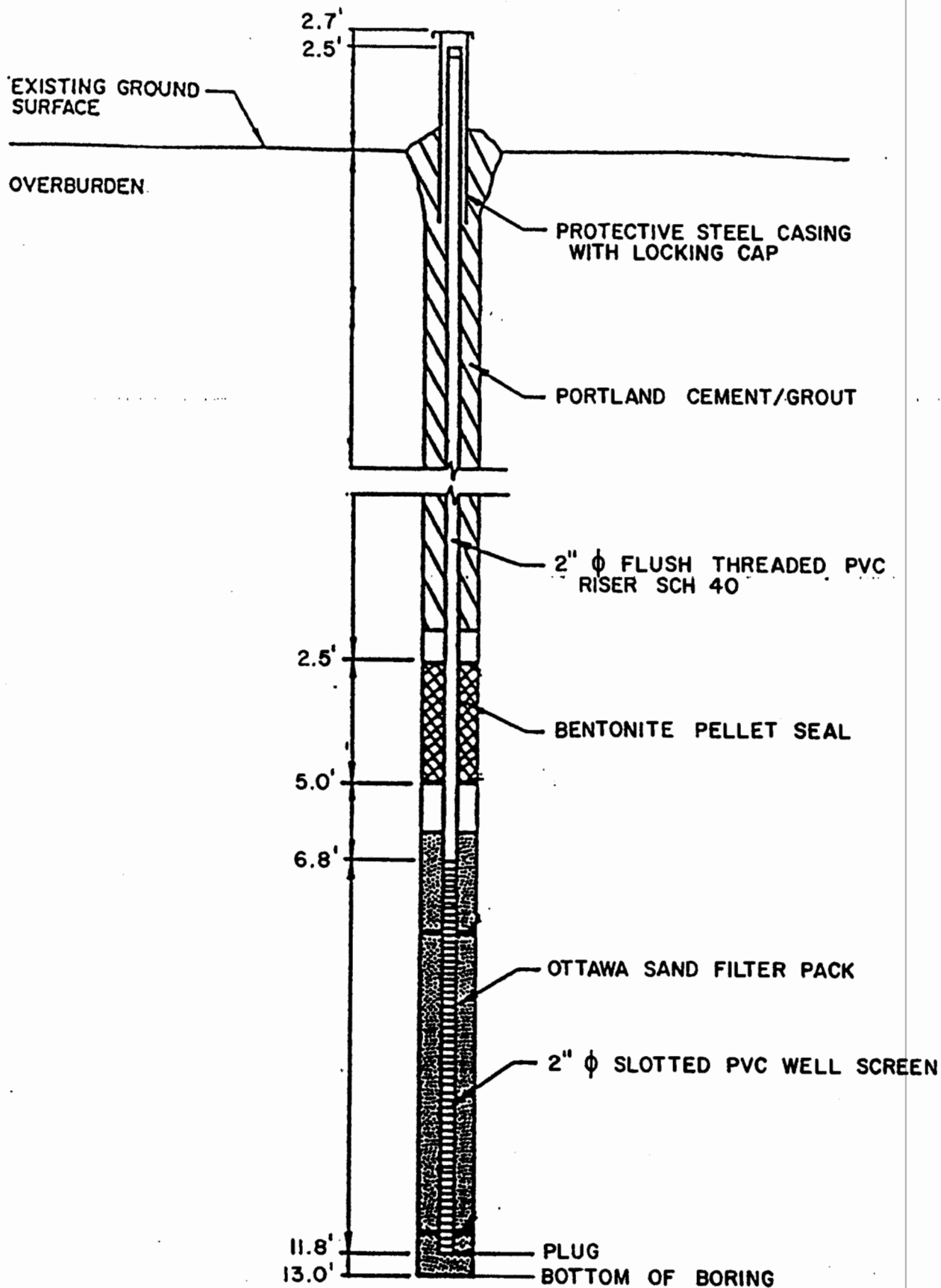
JARD COMPANY

MONITORING WELL MW-WE-3

Scale: NTS

Date: 9/17/90

Project No: 0027201



**WehranEnviroTech**

**JARD COMPANY**

**MONITORING WELL MW-WE-6**

**Scale: NTS**

**Date: 9/17/90**

**Project No: 0027201**

## Imbres, Carolyn

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**From:** Hornok, Gerald  
**Sent:** Monday, September 16, 2013 1:13 PM  
**To:** Imbres, Carolyn  
**Subject:** FW: Survey  
**Attachments:** KocherPark St GW Elevation surveysheet.pdf

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**From:** Coppolino, Patricia [mailto:Patricia.Coppolino@state.vt.us]  
**Sent:** Monday, September 16, 2013 1:01 PM  
**To:** Hornok, Gerald  
**Cc:** Bosworth, Martha (bosworth.martha@epa.gov)  
**Subject:** Survey

***Trish Coppolino, Brownfields Program Manager***  
***p. 802.249.5822***

***1 National Life Drive – Davis 1***  
***Montpelier, VT 05620-3704***

<http://www.anr.state.vt.us/dec/wastediv/SMS/brownfields-home.htm>

### Kocher Drive and Park Street Groundwater Elevation Survey

Elevation	Back site	Instrument Height	Forward site	Elevation	Station/Flag Description
100.00	0.00	100.00	Arbitrary Elevation of 100 feet		Instrument Height at Location 1 - Kocher Drive
	0.00	100.00	6.50	93.50	EPA MW-03 Road Box
	0.00	100.00	6.83	93.17	EPA MW-03 Inner Casing
	0.00	100.00	7.08	92.92	EPA MW-02 Ground Surface
	0.00	100.00	4.23	95.77	EPA MW-02 Inner Casing
	0.00	100.00	6.29	93.71	EPA MW-01 Road Box
	0.00	100.00	6.51	93.49	EPA MW-01 Inner Casing
	0.00	100.00	1.97	98.03	Ground Surface NW Corner Fence Post of Propane Enclosure
98.03	13.27	111.30	Back Site on GS at Propane Encl.		New Instrument Height at entrance to soccer field driveway
	0.00	111.30	6.67	104.63	Ground Surface at chain-link fence post at NE corner of car dealership
	0.00	111.30	0.36	110.94	Ground Surface elevation at third rock west on entrance to soccer field
110.94	7.62	118.56	Back Site on GS at Rock		New Instrument Height at center of soccer field driveway
	0.00	118.56	11.90	106.66	EPA MW-04 Road Box Ground Surface
100.00	0.00	118.56	9.55	109.01	EPA MW-04 Inner Casing
104.63	5.56	110.19	0.00	0.00	New Instrument Height along Progress Way
	0.00	110.19	3.28	106.91	Ground Surface at Stop sign corner of Progress Way and Kocher Drive
106.91	5.72	112.63	Back Site on Stop Sign		New Instrument Height at location along Kocher outside Kaman
	0.00	112.63	1.25	111.38	Ground Surface at concrete slab outside of Kaman Industries
111.38	3.70	115.08	Back Site on concrete slab		New Instrument Height at location along Kocher near fire hydrant
	0.00	115.08	0.10	114.98	Ground Surface at Telephone Pole No. 211, 11, 2 along N. Branch Street
	0.00	115.08	4.18	110.90	Stormwater Grate at the corner of Park Street and Kocher Drive
114.98	7.51	122.49	Back Site on Telephone Pole		New Instrument Height at front yard of 1086 N. Branch St.
	0.00	122.49	7.42	115.07	EPA-107 Road Box at surface
	0.00	122.49	7.60	114.89	EPA-107 Inner Casing
<b>110.90</b>	6.88	117.78	Back Site on Storm Grate		New Instrument Height at location along Park Street

### Kocher Drive and Park Street Groundwater Elevation Survey

Elevation	Back site	Instrument Height	Forward site	Elevation	Station/Flag Description
	0.00	117.78	2.40	115.38	Ground Surface at Telephone Pole No. 20A/36A along Park Street
115.38	5.98	121.36	Back Site on Telephone Pole		New Instrument Height at location adjacent to EPA-106S/106D
	0.00	121.36	5.29	116.07	EPA-106S Concrete Road Box
	0.00	121.36	2.78	118.58	EPA-106S Inner Casing
	0.00	121.36	5.44	115.92	EPA-106D Concrete Road Box
	0.00	121.36	3.08	118.28	EPA-106D Inner Casing
	0.00	121.36	3.08	118.28	Steel Plate (Neenah, Inc.) at corner of Bowen Road and Park Street
118.28	10.78	129.06	Back site on Steel Plate		New Instrument Height at location south lawn of Plesan Facility
	0.00	129.06	2.65	126.41	EPA-108S Ground Surface
	0.00	129.06	0.27	128.79	EPA-108S Inner Casing
	0.00	129.06	1.70	127.36	EPA-108D Ground Surface
	0.00	129.06	0.18	128.88	EPA-108D Inner Casing
	0.00	129.06	4.25	124.81	Neenah Foundry Drain in south lawn of Plesan Facility
124.81	12.30	137.11	Back site on Neenah Drain		New Instrument Height at Balustrades of Plesan Facility SW of Other
	0.00	137.11	4.63	132.48	<b>MW-08 Ground Surface Actual Elevation = 670.60</b>
	0.00	137.11	0.00	137.11	Corner of pavement at Bowen Road and Plesan SE loading dock
137.11	11.88	148.99	Back site on Corner of pavement		New Instrument Height at Entrance to Former Jard facility
	0.00	148.99	6.57	142.42	EPA-100 Ground Surface
	0.00	148.99	3.84	145.15	EPA-100 Inner Casing
	0.00	148.99	5.25	143.74	MW-4D on Former Jard facility
118.28	7.94	126.22	Back site on Steel Plate		New Instrument Height at front yard of XX Park Street
	0.00	126.22	0.98	125.24	Ground Surface at Telephone No. XX on Park Street
	0.00	126.22	9.45	116.77	EPA-104D Ground Surface
	0.00	126.22	6.78	119.44	EPA-104D Inner Casing
	0.00	126.22	9.38	116.84	EPA-104S Ground Surface
	0.00	126.22	6.50	119.72	EPA-104S Inner Casing
125.24	13.86	139.10	Back site on Telephone Pole		New Instrument Height at Corner of bridge over the Waloomsac
	0.00	139.10	8.71	130.39	EPA-101 Ground Surface
	0.00	139.10	8.94	130.16	EPA-101 Inner Casing
	0.00	139.10	5.49	133.61	Intermediate point along path northwest of bridge
133.61	2.15	135.76	Back site on Intermediate point		New Instrument Height along path northwest of bridge
	0.00	135.76	14.34	121.42	EPA-102 Ground Surface
	0.00	135.76	11.85	123.91	EPA-102 Inner Casing
121.42	1.75	123.17	Back site on EPA-102 GS		New Instrument Height along path between EPA-102 and EPA-103
	0.00	123.17	6.93	116.24	Intermediate point along path between EPA-102 and EPA-103
116.24	3.78	120.02	Back site on Intermediate point		New Instrument Height along path between EPA-102 and EPA-103
	0.00	120.02	4.65	115.37	EPA-103 Ground Surface
	0.00	120.02	2.37	117.65	EPA-103 Inner Casing



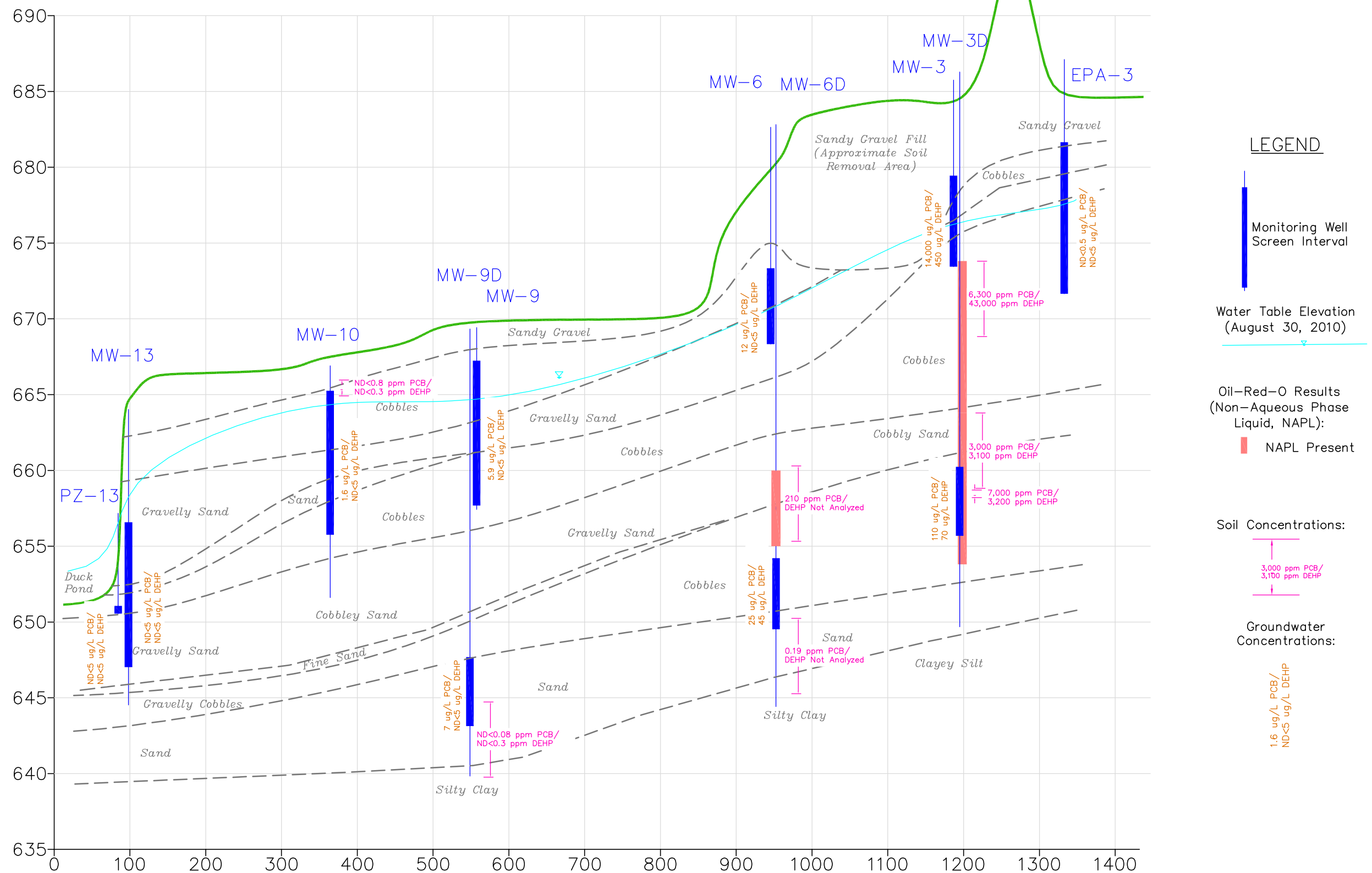
### Kocher Drive and Park Street Groundwater Elevation Survey

Elevation	Back site	Instrument Height	Forward site	Elevation	Station/Flag Description
115.37	8.25	123.62	Back site on EPA-103 GS		New Instrument Height south of EPA-103
	0.00	123.62	13.42	110.20	Intermediate point along path northwest of EPA-103
110.20	4.05	114.25	Back site on Intermediate point		New Instrument Height north of Intermediate point
	0.00	114.25	7.09	107.16	Intermediate point along path north of Intermediate point
107.16	5.43	112.59	Back site on Intermediate point		New Instrument Height north of Intermediate point
	0.00	112.59	3.68	108.91	EPA-105 Ground Surface
	0.00	112.59	0.93	111.66	EPA-105 Inner Casing

Table 3  
Potentiometric Data  
Former Jard Company Site  
Bennington, Vermont

Location	Top of Casing Elevation (ft.) (1)	7/29/2010		8/6/2010		8/30/2010	
		DTW (ft.)	Elevation (ft.)	DTW (ft.)	Elevation (ft.)	DTW (ft.)	Elevation (ft.)
EPA-2	684.40	Dry	< 679.70	Dry	< 679.70	Dry	< 679.70
EPA-3	687.11	9.56	677.55	9.11	678.00	10.06	677.05
EPA-4	685.88	8.80	677.08	8.44	677.44	9.24	676.64
EPA-5	686.01	<i>inaccessible</i>		<i>inaccessible</i>		<i>destroyed</i>	
EPA-6	683.72	21.74	<i>not available (3)</i>	21.31	<i>not available (3)</i>	9.36	674.36
EPA-7	683.15	<i>inaccessible</i>		<i>inaccessible</i>		10.87	672.28
EPA-8	678.50	<i>inaccessible</i>		<i>inaccessible</i>		8.05	670.45
EPA-9	683.91	Dry	< 672.39	10.97	672.94	Dry	< 672.39
EPA-10	684.23	10.34	673.89	10.00	674.23	10.76	673.47
MW-1	680.05	9.26	670.79	9.05	671.00	9.80	670.25
MW-2	684.68	7.44	677.24	6.91	677.77	8.06	676.62
MW-3	685.75	8.78	676.97	<i>not measured (2)</i>		9.37	676.38
MW-3D	686.29	<i>not constructed</i>		9.69	676.60	10.57	675.72
MW-4	683.94	7.50	676.44	7.05	676.89	8.20	675.74
MW-4D	683.91	<i>not constructed</i>		8.46	675.45	9.51	674.40
MW-6	682.64	11.17	671.47	11.07	671.57	11.87	670.77
MW-6D	682.82	<i>not constructed</i>		11.52	671.30	12.29	670.53
MW-7	670.53	<i>not constructed</i>		3.91	666.62	4.77	665.76
MW-8	670.60	<i>not constructed</i>		5.26	665.34	5.86	664.74
MW-9	669.43	<i>not constructed</i>		<i>not constructed</i>		4.69	664.74
MW-9D	669.34	<i>not constructed</i>		<i>not constructed</i>		5.12	664.22
MW-10	666.91	<i>not constructed</i>		2.15	664.76	2.66	664.25
MW-11	667.23	<i>not constructed</i>		1.51	665.72	1.96	665.27
MW-12	670.05	<i>not constructed</i>		4.08	665.97	4.35	665.70
MW-13	664.03	<i>not constructed</i>		5.61	658.42	5.70	658.33
PZ-01	687.75	2.68	685.07	1.92	685.83	4.32	683.43
PZ-02	<i>not measured (4)</i>	<i>not constructed</i>		2.14	<i>not available (4)</i>	<i>destroyed</i>	
PZ-03	678.20	2.83	675.37	2.59	675.61	3.58	674.62
PZ-04	664.06	2.97	661.09	2.44	661.62	3.40	660.66
PZ-05	661.25	2.43	658.82	2.03	659.22	2.73	658.52
PZ-06	654.28	3.28	651.00	2.85	651.43	3.69	650.59
PZ-12	666.95	<i>not constructed</i>		2.52	664.43	2.87	664.08
PZ-13	657.20	<i>not constructed</i>		0.98	656.22	1.01	656.19
PZ-14	660.69	<i>not constructed</i>		<i>not constructed</i>		2.13	658.56

- 1) Surveyed by Guntlow & Associates, Inc. licensed surveyor
- 2) Not measured due to suspected potential for presence of non-aqueous phase liquid (NAPL).
- 3) Elevation not available due to change in top-of casing elevation between time of measurement and time of survey.
- 4) Elevation not available; location destroyed prior to survey.

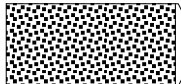
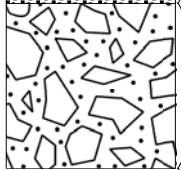
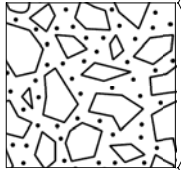
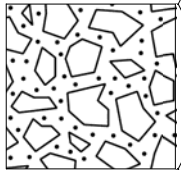
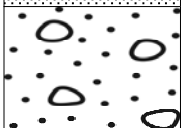




The Johnson Company, Inc.  
100 State St. Suite 600  
Montpelier, VT 05602  
(802) 229-4600

## MW-11

**Project:** JARD Site  
**Location:** Bennington, VT  
**Job #:** 3-2218-3  
**Geologist:** DPB  
**TOC Elevation:** 667.23

Depth (ft. bgs)	PID (ppm)	Well Construction Diagram	Geology	Description
0.00		Flushmount		Gravelly SAND, some silt, humid, dark brown, organic.
		2" PVC Casing		
		Cetco Bentonite Chips		COBBLES and silty sand, cobbles generally rounded, up to 0.4' in diameter. Silty sand is cohesive, very dark brown except red-orange from 1.3 to 1.5 fbs. Damp.
0.5				No Recovery.
5.00		Screen		COBBLES with gravelly sand. Cobbles are rounded, gravel is angular. Sand is very fine to coarse, well graded. Saturated.
		Filpro Silica Filtation Sand		No Recovery.
0.4				No Recovery.
10.00		Bottom Cap		Same as 5-7' bgs, except cobbles are subangular to angular.
		Filpro Silica Filtation Sand		No Recovery.
0.5				No Recovery.
15.00		Native Material Caving		

**Drilling Date:** 08/04/10  
**Drilling Company:** Boart Longyear  
**Drilling Method:** Rotosonic  
  
**Easting (VT SPCS):** 443592.11  
**Northing (VT SPCS):** 43666.868

### Construction Materials

Casing: Schedule 40 PVC  
Screen: PVC with 0.010 slot  
Filter Pack: #0 Filter Sand  
Seal: Bentonite  
Surface Completion: --  
Riser Pipe and Screen Diameter: 2.0"



The Johnson Company, Inc.  
100 State St. Suite 600  
Montpelier, VT 05602  
(802) 229-4600

# MW-3D

**Project:** JARD Site  
**Location:** Bennington, VT  
**Job #:** 3-2218-3  
**Geologist:** DPB  
**TOC Elevation:** 686.29

Depth (ft. bgs)	PID (ppm)	Well Construction Diagram	Geology	Description
0.00	0			Dry, brown, fine SAND, trace gravel, probable fill.
	0			Dry, grey-brown SAND with rock fragments (up to 0.3 ft).
0.5	0.5			COBBLES, rounded to subrounded, dry, slight tar-like odor.
5.00	NR			No Recovery.
	0.8			COBBLES, rounded to subangular, dry, light coating of black tar-like substance, tar odor.
	3.1			Dry, brown, gravelly SAND, thick black tar substance, strong odor.
	4.2			Dry to moist COBBLES with sand, grey tar-like substance.
10.00	NR			No Recovery.
	4.8			COBBLES with sand, coated in tar that is black at top of run, becoming dark grey at bottom.
15.00	NR			No Recovery.
	5.2			Gravelly COBBLES, wet, cobbles are rounded to subangular, gravel is fine to coarse, subangular to angular. Upper two feet covered in greyish tar, bottom 1.3 has no discernable tar.
20.00	NR			No Recovery.
	0.4			Wet, grey SAND, fine to medium grading downwards to medium to coarse.
				COBBLES, subangular, some gravel.
25.00	NR			No Recovery.
	1			Saturated, brown, fine to medium sand, noncohesive.
				COBBLES with coarse sand and gravel, cobbles and gravel are subangular. Humid.
30.00	NR			No Recovery.
				No Recovery.

**Drilling Date:** 08/02/10  
**Drilling Company:** Boart Longyear  
**Drilling Method:** Rotosonic  
  
**Easting (VT SPCS):** 443680.58  
**Northing (VT SPCS):** 43429.918

## Construction Materials

Casing: Schedule 40 PVC  
Screen: PVC with 0.010 slot  
Filter Pack: #0 Filter Sand  
Seal: Bentonite  
Surface Completion: --  
Riser Pipe and Screen Diameter: 2.0"



The Johnson Company, Inc.  
100 State St. Suite 600  
Montpelier, VT 05602  
(802) 229-4600

# MW-9D

**Project:** JARD Site  
**Location:** Bennington, VT  
**Job #:** 3-2218-3  
**Geologist:** DPB  
**TOC Elevation:** 669.34

Depth (ft. bgs)	PID (ppm)	Well Construction Diagram	Geology	Description
0.00		Flushmount		Gravelly SAND, some silt, humid, dark brown, organic. Very fine SAND, some silt, humid, red-orange. Same as above, but very light brown. COBBLES with silty sand, damp, silty sand is very dark brown. Tree roots. Gravelly COBBLES, damp, some fine to medium sand, trace silt. Cobbles are rounded to subangular.
5.00	0.7			No Recovery.
10.00		Cetco Bentonite Chips		
		2" PVC Casing		COBBLES with gravel and sand, wet. Sand is fine to coarse, gravel is fine to coarse. Cobbles and gravel are subangular to angular. Same as above, but lacking fine to medium gravel.
15.00	0.5			No Recovery.
				Gravelly SAND, light brown sand is fine to coarse, gravel is fine. Wet, noncohesive. Sandy GRAVEL, gravel is coarse, sand is fine to coarse. Wet, gravel is rounded to subangular. Cobbly SAND, some gravel. Sand is fine to coarse. Brown cobbles are generally rounded, some angular, subangular. Wet.
20.00	0			No Recovery.
		Filpro Silica Filtration Sand		Fine SAND, some medium sand and silt, saturated, brown. Gravelly COBBLES, some coarse sand, wet. Cobbles are rounded to subangular, gravel subangular to angular. Fine to coarse SAND, some fine gravel, fine to medium sand is brown. Gravel is subangular, wet.
25.00	0.1	Screen		Fine to medium SAND, few cobbles. Sand is brown. Cobbles rounded. Wet, noncohesive.
				No Recovery.
		Bottom Cap		Brown sand, fine to medium at top, increasing coarse sand with depth, becomes medium to coarse. Wet, noncohesive.
	0.5	Filpro Silica Filtration Sand		Gravel, fine to coarse, rounded to angular, wet. Grey-brown silty CLAY, trace fine sand, gravel. Humid, hard. Durability increasing with depth. Cannot roll 1/2" bead at 29.2 fbs, but can roll <1/8" bead at 30.0 fbs.
30.00		Cetco Bentonite Chips		

**Drilling Date:** 08/05/10  
**Drilling Company:** Boart Longyear  
**Drilling Method:** Rotasonic  
  
**Easting (VT SPCS):** 443546.058  
**Northing (VT SPCS):** 43572.481

## Construction Materials

Casing: Schedule 40 PVC  
Screen: PVC with 0.010 slot  
Filter Pack: #0 Filter Sand  
Seal: Bentonite  
Surface Completion: --  
Riser Pipe and Screen Diameter: 2.0"

**Table 1**  
**Potentiometric Data**  
Former Jard Company Site  
Bennington, Vermont

The Johnson Company

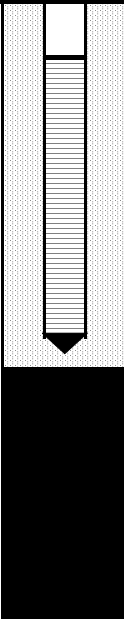
Location	Interval	Top of Casing Elevation (ft.) (1)	7/29/2010		8/6/2010		8/30/2010		4/18/2012		10/17/2012	
			DTW (ft.)	Elevation (ft.)	DTW (ft.)	Elevation (ft.)	DTW (ft.)	Elevation (ft.)	DTW (ft.)	Elevation (ft.)	DTW (ft.)	Elevation (ft.)
EPA-3	Shallow	687.11	9.56	677.55	9.11	678.00	10.06	677.05	10.98	676.13	10.40	676.71
EPA-9	Shallow	683.91	Dry	< 672.39	10.97	672.94	Dry	< 672.39	Dry	< 672.39	Dry	< 672.39
EPA-100	Deep	683.06	<i>not constructed</i>		<i>not constructed</i>		<i>not constructed</i>		<i>not constructed</i>		9.52	673.54
EPA-101	Deep	665.23	<i>not constructed</i>		<i>not constructed</i>		<i>not constructed</i>		<i>not constructed</i>		7.04	658.19
EPA-102	Deep	658.98	<i>not constructed</i>		<i>not constructed</i>		<i>not constructed</i>		<i>not constructed</i>		6.73	652.25
EPA-103	Deep	652.73	<i>not constructed</i>		<i>not constructed</i>		<i>not constructed</i>		<i>not constructed</i>		8.59	644.14
EPA-104S	Shallow	654.80	<i>not constructed</i>		<i>not constructed</i>		<i>not constructed</i>		<i>not constructed</i>		4.40	650.40
EPA-104D	Deep	654.54	<i>not constructed</i>		<i>not constructed</i>		<i>not constructed</i>		<i>not constructed</i>		4.24	650.30
EPA-105	Deep	646.35	<i>not constructed</i>		<i>not constructed</i>		<i>not constructed</i>		<i>not constructed</i>		7.81	638.54
EPA-106S	Shallow	653.70	<i>not constructed</i>		<i>not constructed</i>		<i>not constructed</i>		<i>not constructed</i>		4.43	649.27
EPA-106D	Deep	653.40	<i>not constructed</i>		<i>not constructed</i>		<i>not constructed</i>		<i>not constructed</i>		4.23	649.17
EPA-107	Deep	650.01	<i>not constructed</i>		<i>not constructed</i>		<i>not constructed</i>		<i>not constructed</i>		2.75	647.26
EPA-108S	Shallow	665.47	<i>not constructed</i>		<i>not constructed</i>		<i>not constructed</i>		<i>not constructed</i>		6.23	659.24
EPA-108D	Deep	665.71	<i>not constructed</i>		<i>not constructed</i>		<i>not constructed</i>		<i>not constructed</i>		6.35	659.36
MW-1	Shallow	680.05	9.26	670.79	9.05	671.00	9.80	670.25	10.60	669.45	9.80	670.25
MW-2	Shallow	684.68	7.44	677.24	6.91	677.77	8.06	676.62	8.77	675.91	8.05	676.63
MW-3	Shallow	685.75	8.78	676.97	<i>not measured (2)</i>		9.37	676.38	10.43	675.32	9.82	675.93
MW-3D	Deep	686.29	<i>not constructed</i>		9.69	676.60	10.57	675.72	11.68	674.61	11.00	675.29
MW-4	Shallow	683.94	7.50	676.44	7.05	676.89	8.20	675.74	8.87	675.07	8.12	675.82
MW-4D	Deep	683.91	<i>not constructed</i>		8.46	675.45	9.51	674.40	10.43	673.48	9.50	674.41
MW-6	Shallow	682.64	11.17	671.47	11.07	671.57	11.87	670.77	13.21	669.43	12.31	670.33
MW-6D	Deep	682.82	<i>not constructed</i>		11.52	671.30	12.29	670.53	13.30	669.52	12.46	670.36
MW-8	Shallow	670.60	<i>not constructed</i>		5.26	665.34	5.86	664.74	6.87	663.73	6.00	664.60
MW-9	Shallow	669.43	<i>not constructed</i>		<i>not constructed</i>		4.69	664.74	5.60	663.83	4.54	664.89
MW-9D	Deep	669.34	<i>not constructed</i>		<i>not constructed</i>		5.12	664.22	6.04	663.30	5.02	664.32
MW-10	Shallow	666.91	<i>not constructed</i>		2.15	664.76	2.66	664.25	3.28	663.63	2.42	664.49
MW-11	Shallow	667.23	<i>not constructed</i>		1.51	665.72	1.96	665.27	2.36	664.87	1.77	665.46
MW-12	Shallow	670.05	<i>not constructed</i>		4.08	665.97	4.35	665.70	4.48	665.57	4.22	665.83
MW-13	Shallow	664.03	<i>not constructed</i>		5.61	658.42	5.70	658.33	6.04	657.99	5.66	658.37
PZ-12	Shallow	666.95	<i>not constructed</i>		2.52	664.43	2.87	664.08	3.70	663.25	2.49	664.46
PZ-13	Shallow	657.20	<i>not constructed</i>		0.98	656.22	1.01	656.19	1.03	656.17	0.98	656.22
PZ-14	Shallow	660.69	<i>not constructed</i>		<i>not constructed</i>		2.13	658.56	2.66	658.03	2.12	658.57
PZ-15	Shallow	662.52	<i>not constructed</i>		<i>not constructed</i>		<i>not constructed</i>		<i>not constructed</i>		1.68	660.84
PZ-16	Shallow	649.51	<i>not constructed</i>		<i>not constructed</i>		<i>not constructed</i>		<i>not constructed</i>		2.14	647.37
PZ-17	Shallow	666.68	<i>not constructed</i>		<i>not constructed</i>		<i>not constructed</i>		<i>not constructed</i>		3.11	663.57
PZ-18	Shallow	654.21	<i>not constructed</i>		<i>not constructed</i>		<i>not constructed</i>		<i>not constructed</i>		3.01	651.20
PZ-19	Shallow	652.74	<i>not constructed</i>		<i>not constructed</i>		<i>not constructed</i>		<i>not constructed</i>		3.88	648.86
PZ-20	Shallow	647.18	<i>not constructed</i>		<i>not constructed</i>		<i>not constructed</i>		<i>not constructed</i>		2.62	644.56
PZ-21	Shallow	645.06	<i>not constructed</i>		<i>not constructed</i>		<i>not constructed</i>		<i>not constructed</i>		2.58	642.48
PZ-101	Shallow	685.87	<i>not constructed</i>		<i>not constructed</i>		<i>not constructed</i>		<i>not constructed</i>		3.01	682.86
PZ-102	Shallow	680.78	<i>not constructed</i>		<i>not constructed</i>		<i>not constructed</i>		<i>not constructed</i>		3.20	677.58
PZ-103	Shallow	<i>not measured (4)</i>	<i>not constructed</i>		<i>not constructed</i>		<i>not constructed</i>		<i>not constructed</i>		2.35	<i>not available (4)</i>
PZ-104	Shallow	666.63	<i>not constructed</i>		<i>not constructed</i>		<i>not constructed</i>		<i>not constructed</i>		3.13	663.50
PZ-105	Shallow	660.27	<i>not constructed</i>		<i>not constructed</i>		<i>not constructed</i>		<i>not constructed</i>		2.31	657.96
PZ-106	Shallow	650.85	<i>not constructed</i>		<i>not constructed</i>		<i>not constructed</i>		<i>not constructed</i>		2.31	648.54
PZ-107	Shallow	644.07	<i>not constructed</i>		<i>not constructed</i>		<i>not constructed</i>		<i>not constructed</i>		1.45	642.62

- 1) Surveyed by Guntflow & Associates, Inc.; Weston Solutions, Inc.; and The Johnson Company, Inc.
- 2) Not measured due to suspected potential for presence of non-aqueous phase liquid (NAPL).
- 3) Elevation not available due to change in top-of casing elevation between time of measurement and time of survey.
- 4) Elevation not available; location destroyed prior to survey.

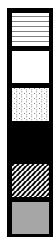




Project	Park Street Site	Boring ID	NA	Groundwater Levels*	
Location	Bennington, Vermont	Well ID	EPA-100	Date	Depth (ft)
Date Drilled	28-Aug-12	Drilling Method	ODEX and Drive and Wash	30-Aug-12	9.30
Drilling Company	New Hampshire Boring	Sampling Method	2-in diam. Split Spoon		
Drilling Foreman	Manlea W. Thompson	Completion Depth	32 feet bgs		
Drill Rig Type	CME-550X	Surface Elevation			

Logged by			George Mavris - Weston, Superfund Technical Assessment and Response Team (START)			
Depth (ft bgs)	Well Construct.	Split Spoon No.	Blow Counts (N)	Recovery (inches)	Soil Description	Relative Density Descriptor
28					Split spoon soil sampling began at the 33 - 35 foot interval.	
30						
32						
34			1	WOR (12 in)-3-8	11	0 - 11" Gray, CLAY, little silt. Wet.
36		2	5-6-8-8	20	0 - 8" Gray, CLAY, little silt. Wet. 8 - 20" Gray, CLAY (with thin laminae of brown silt). Wet.	Stiff
38					-End of boring at 37 feet-	

Well Construction Details:




- Screen
- 2-in diameter, No. 10 slot (0.010 in) Schedule 40 PVC screen, 27 - 32 ft bgs
- Riser
- 2-in diameter, Schedule 40 PVC riser, 2.7 ft ags - 27 ft bgs
- Filter sand
- Filter sand (0) from 25 - 32.5 ft bgs
- Bentonite seal
- Bentonite seal from 32.5 - 37 and 10 - 25 ft bgs (2 inches of sand on top of bentonite)
- Grout
- Grout (Portland Cement, Type I/II) from 1 - 10 ft bgs
- Concrete
- Concrete (Sakrete), 0 - 1 ft bgs
- Metal protective casing extends 2.9 ft ags and 2.1 ft bgs

Notes:

Soil Classification System - Burmister

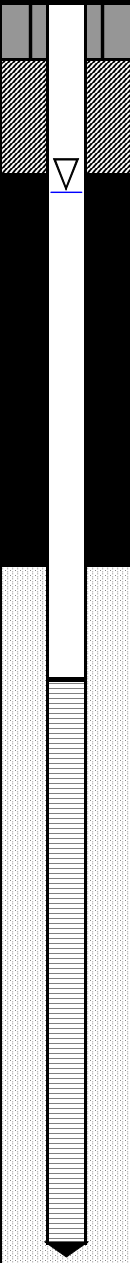
\* Measurements from top of PVC riser

 Top of water table

ags = above ground surface      WOR = Weight of rods

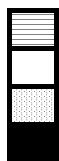
bgs = below ground surface

NA = Not Applicable

Project			Park Street Site		Boring ID		NA		Groundwater Levels*	
Location			Bennington, Vermont		Well ID		EPA-107		Date	Depth (ft)
Date Drilled			29-Aug-12		Drilling Method		ODEX and Drive and Wash		30-Aug-12	3.03
Drilling Company			New Hampshire Boring		Sampling Method		2-in diam. Split Spoon			
Drilling Foreman			Manlea W. Thompson		Completion Depth		22.2 feet bgs			
Drill Rig Type			CME-550X		Surface Elevation					
Logged by			George Mavris - Weston, Superfund Technical Assessment and Response Team (START)							
Depth (ft bgs)	Well Construct.	Split Spoon No.	Blow Counts (N)	Recovery (inches)	Soil Description					Relative Density Descriptor
0		NA	NA	NA	0 - 6" - Topsoil  Boring advanced 20 feet through cobble/boulders using ODEX drilling method, and then drive and wash drilling method was used once below the cobbles/boulders.  ODEX casing was removed and 4-inch regular casing was advanced while using drive and wash drilling method. Used 2-inch diameter split spoons and 140 lb. auto-hammer for soil sampling.  Water table at 3.28 feet bgs.  0 - 20 feet Gravel, cobbles, and boulders (white, pink, tan, buff, and black quartzite and metamorphic rock fragments), and fine-to-coarse sand, and silt.					NA
2										
4										
6										
8										
10					Split spoon soil sampling began at the 20 - 22 foot interval.					
12					0 - 9" Light brown, SILT and coarse-to-fine GRAVEL (subangular, fines are pasted on coarse gravel, gravel includes igneous and metamorphic rock fragments), trace clay.					Hard
14					0 - 12" Light brown, SILT and coarse-to-fine GRAVEL (subangular, fines are pasted on coarse gravel, gravel includes igneous and metamorphic rock fragments), trace clay.					Hard
16					Advanced borehole to 25 feet using drive and wash drilling method.					
18										
20										
22										
24										

<b>Project</b>	Park Street Site	<b>Boring ID</b>	NA	<b>Groundwater Levels*</b>	
<b>Location</b>	Bennington, Vermont	<b>Well ID</b>	EPA-107	<b>Date</b>	<b>Depth (ft)</b>
<b>Date Drilled</b>	29-Aug-12	<b>Drilling Method</b>	ODEX and Drive and Wash	28-Aug-12	3.03
<b>Drilling Company</b>	New Hampshire Boring	<b>Sampling Method</b>	2-in diam. Split Spoon		
<b>Drilling Foreman</b>	Manlea W. Thompson	<b>Completion Depth</b>	22.2 feet bgs		
<b>Drill Rig Type</b>	CME-550X	<b>Surface Elevation</b>			
<b>Logged by</b>	George Mavis - Weston, Superfund Technical Assessment and Response Team (START)				

Depth (ft bgs)	Well Construct.	Split Spoon No.	Blow Counts (N)	Recovery (inches)	Soil Description	Relative Density Descriptor
26		3	17-24-35-44	20	0 - 20" Light brown and gray, SILT, some coarse-to-fine gravel (subangular), little clay (very hard, appears dry when broken). Fines plastered on gravel fragments. Wet.	Hard
28		4	41-52-100R (4 inch advance)	21	0 - 21" Light brown and gray, SILT, some coarse-to-fine gravel (subangular), little clay (very hard, appears dry when broken). Fines plastered on gravel fragments. Rock stuck in cutting shoe. Wet. Bedrock (?) encountered at 28.5 ft bgs.	Hard
30					-End of boring at 28.5 feet-	

**Well Construction Details:**

Screen

Riser

Filter sand

Bentonite seal

Grout

Concrete

2-in diameter, No. 10 slot (0.010 in) Schedule 40 PVC screen, 12.2 - 22.2 ft bgs

2-in diameter, Schedule 40 PVC riser, 0.30 ft - 12.2 ft bgs

Filter sand (0) from 10 - 22.5 ft bgs and 25 - 29 ft bgs

Bentonite seal from 3 - 10 ft bgs (2 inches of sand on top of bentonite) and from 22.5 - 25 ft bgs

Grout (Portland Cement, Type I/II) from 1 - 3 ft bgs

Concrete (Sakrete), 0 - 1 ft bgs

Road box (flush-mount) casing extends to 1 ft bgs

**Notes:**

Soil Classification System - Burmister

\* Measurements from top of PVC riser

Top of water table

ags = above ground surface      R = refusal

bgs = below ground surface

NA = Not Applicable

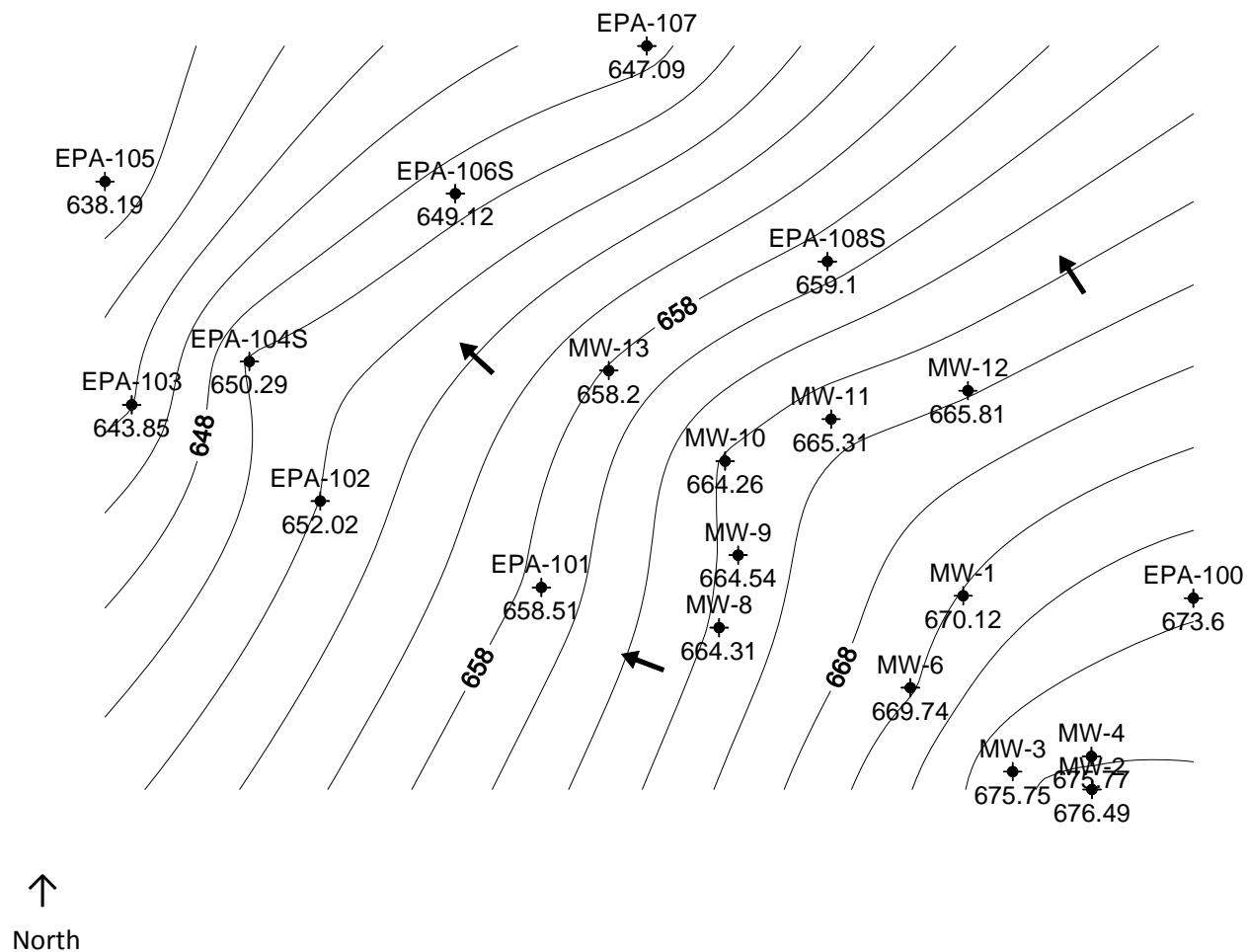
**ATTACHMENT B – PHOTOGRAPH**

**PHOTODOCUMENTATION LOG**  
**Jard Company Inc • Bennington, Vermont**



Photograph of groundwater monitoring wells MW-3 (on left) and MW-3D (on right), located on the former building footprint portion of the Jard Company Inc. property. This photograph shows the relative similarity of the ground surface elevations at each location. Photograph taken on 2 April 2013 by Weston Solutions, Inc. personnel as part of the Site Reassessment.

**ATTACHMENT C – Ground water flow elevations contour map and aerial**



Notes:

Contour Map created using Surfer Version 8.05.

Ground water monitoring well points are labeled with Well IDs and depth to ground water elevations in feet above mean sea level.





**Figure 2B**  
**Groudwater Monitoring**  
**Well Locations**

**Jard Company, Inc.**  
**Bowen Road**  
**Bennington, VT**

**EPA Region I**  
**Superfund Technical Assessment and**  
**Response Team (START) III**  
**Contract No. EP-W-05-042**

**TDD Number:** 12-10-0008

**Created by:** G. Hornok

**Created on:** 11 January 2013

**Modified by:** G. Hornok

**Modified on:** 13 September 2013

**LEGEND**

- Former Building Foundation
- Jard Property Boundary
- + Monitoring Wells



0 50 100 200 300 400  
 Feet

**Data Sources:**

Imagery: Bing Aerial Imagery

Topos: NA

All other data: START, VT ANR GIS

